

DISPENSE PUMP WITH HEATED PUMP HOUSING
AND HEATED MATERIAL RESERVOIR

ABSTRACT OF THE DISCLOSURE

5 A heated dispense pump overcomes the limitations of conventional systems providing for reliable and efficient heating of the dispensed material in a system that is compact, lightweight, and accurate. A pump housing and cartridge body are formed of a thermally conductive material such as copper, aluminum, or an alloy combination thereof. A heater element is applied directly to the body of the pump housing, and a thermocouple is included to

10 provide for closed-loop controllability. The material flows though the cartridge body and is heated prior to release at the dispense tip. The heated elements, including the pump housing and cartridge body, are thermally insulated from the pump motor and pump gantry to prevent the escape of heat from the system and to protect those adjacent components from heat damage. An optional syringe heater is provided for heating the material in the syringe, and for

15 controlling the temperature of the material, in closed-loop fashion. In this manner, the temperature of the material in the syringe and the temperature of the material in the pump can be controlled independently of each other.

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